



SUBSTITUTE FORM PTO-1449 (MODIFIED) U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use several sheets if necessary) (37 C.F.R. § 1.98(b))	Attorney Docket No.	50334/019001
	Serial No.	10/668,749
	Applicant	Hui Wang
	Filing Date	September 23, 2003
	Group	1631
	IDS Filed	April 16, 2008

U.S. PATENT DOCUMENTS						
Examiner's Initials	Document Number	Publication Date	Patentee or Applicant			
	H201	01/06/87	Yager			
	3,856,633	12/24/74	Fletcher, III.			
	4,456,522	06/26/84	Blackburn			
	4,521,729	06/04/85	Kiesewetter et al.			
	4,661,235	04/28/87	Krull et al.			
	4,874,499	10/17/89	Smith et al.			
	5,001,048	03/19/91	Taylor et al.			
	5,111,221	05/05/92	Fare et al.			
	5,221,447	06/22/93	Hjerten			
	5,234,566	08/10/93	Osman et al.			
	5,356,776	10/18/94	Kambara et al.			
	5,376,878	12/27/94	Fisher			
	5,378,342	01/03/95	Ikematsu et al.			
	5,503,744	04/02/96	Ikematsu et al.			
	5,612,179	03/18/97	Simons			
	5,795,782	08/18/98	Church et al.			
	5,833,826	11/10/98	Nordman			
	5,911,871	06/15/99	Preiss et al.			
	6,015,714	01/18/00	Baldarelli et al.			
	6,054,035	04/25/00	Kambara			
	6,156,502	12/05/00	Beattie			

EXAMINER	DATE CONSIDERED
EXAMINER: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with the next communication to applicant.	

SUBSTITUTE FORM PTO-1449 (MODIFIED) INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use several sheets if necessary) (37 C.F.R. § 1.98(b))	U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	Attorney Docket No.	50334/019001
		Serial No.	10/668,749
		Applicant	Hui Wang
		Filing Date	September 23, 2003
		Group	1631
		IDS Filed	April 16, 2008

U.S. PATENT DOCUMENTS						
	6,190,865	02/20/01	Jendrisak et al.			
	6,203,993	03/20/01	Shuber et al.			
	6,214,545	04/10/01	Dong et al.			
	6,221,603	04/24/01	Mahtani			
	6,238,866	05/29/01	Yeh et al.			
	6,267,872	07/31/01	Akeson et al.			
	6,355,420	03/12/02	Chan			
	6,362,002	03/26/02	Denison			
	6,403,311	06/11/02	Chan			
	6,464,842	10/15/02	Golovchenko et al.			
	6,528,258	03/04/03	Russell			
	6,627,067	09/30/03	Branton et al.			
	6,673,615	01/06/04	Denison et al.			
	6,746,594	06/08/04	Akeson et al.			
	6,783,643	08/31/04	Golovchenko et al.			
	2002/0039737 A1	04/04/02	Chan et al.			
	2002/0081744 A1	06/27/02	Chan et al.			
	2002/0119455 A1	08/29/02	Chan et al.			
	2003/0044816 A1	03/06/03	Denison et al.			
	2003/0059822 A1	03/27/03	Chan et al.			
	2003/0066749 A1	04/10/03	Golovchenko et al.			
	2003/0104428 A1	06/05/03	Branton et al.			
	6,267,872 B1	7/13/2001	Akeson et al.			

EXAMINER	DATE CONSIDERED
EXAMINER: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with the next communication to applicant.	

SUBSTITUTE FORM PTO-1449 (MODIFIED) U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use several sheets if necessary) (37 C.F.R. § 1.98(b))	Attorney Docket No.	50334/019001
	Serial No.	10/668,749
	Applicant	Hui Wang
	Filing Date	September 23, 2003
	Group	1631
	IDS Filed	April 16, 2008

U.S. PATENT DOCUMENTS						
	6,429,959 B1	8/6/2002	Deamer			

FOREIGN PATENT OR PUBLISHED FOREIGN PATENT APPLICATION						
Examiner's Initials	Document Number	Publication Date	Country or Patent Office	Class	Subclass	Translation (Yes/No)
	DE 30 28 569 A1	02/25/82	Germany			
	GB 2 232 769 A	12/19/90	United Kingdom			
	WO 94/25862 A1	11/10/94	WIPO			
	WO 98/35012 A2	08/13/98	WIPO			
	WO 00/09757 A1	02/24/00	WIPO			
	WO 00/56937 A2	09/28/00	WIPO			
	WO 00/78668 A1	12/28/00	WIPO			
	WO 00/79257 A1	12/28/00	WIPO			
	WO 01/18251 A1	03/15/01	WIPO			
	WO 01/42782 A1	06/14/01	WIPO			
	WO 01/59684 A2	08/16/01	WIPO			
	WO 03/000920 A2	01/03/03	WIPO			
	WO 03/003446 A2	01/09/03	WIPO			
	WO 2004/077503	09/10/04	WIPO			

OTHER DOCUMENTS (INCLUDING AUTHOR, TITLE, DATE, PLACE OF PUBLICATION)	
	Akeson et al., "Microsecond Time-Scale Discrimination among Polycytidylic Acid, Polyadenylic Acid, and Polyuridylic Acid as Homopolymers or as Segments within Single RNA Molecules," <i>Biophys. J.</i> 77:3227-3233 (1999).
	Auld et al., "A Neutral Amino Acid Change in Segment IIS4 Dramatically Alters the Gating Properties of the Voltage-Dependent Sodium Channel," <i>Proc. Natl. Acad. Sci. USA</i> 87:323-327 (1990).

EXAMINER	DATE CONSIDERED
EXAMINER: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with the next communication to applicant.	

SUBSTITUTE FORM PTO-1449 (MODIFIED) U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use several sheets if necessary) (37 C.F.R. § 1.98(b))	Attorney Docket No.	50334/019001
	Serial No.	10/668,749
	Applicant	Hui Wang
	Filing Date	September 23, 2003
	Group	1631
	IDS Filed	April 16, 2008

OTHER DOCUMENTS (INCLUDING AUTHOR, TITLE, DATE, PLACE OF PUBLICATION)	
	Bensimon et al., "Alignment and Sensitive Detection of DNA by a Moving Interface," <i>Science</i> 265:2096-2098 (1994).
	Benz et al., "Mechanism of Sugar Transport through the Sugar-Specific LamB Channel of <i>Escherichia Coli</i> Outer Membrane," <i>J. Membr. Biol.</i> 100:21-29 (1987).
	Benz et al., "Pore Formation by LamB of <i>Escherichia Coli</i> in Lipid Bilayer Membranes," <i>J. Bacteriol.</i> 165:978-986 (1986).
	Bezrukov et al., "Counting Polymers Moving through a Single Ion Channel," <i>Nature</i> 370:279-281 (1994).
	Boulain et al., "Mutagenesis by Random Linker Insertion into the LamB Gene of <i>Escherichia Coli</i> K12," <i>Mol. Gen. Genet.</i> 205:339-348 (1986).
	Boulanger et al., "Characterization of Ion Channels Involved in the Penetration of Phage T4 DNA into <i>Escherichia Coli</i> Cells," <i>J. Biol. Chem.</i> 263:9767-9775 (1988).
	Boulanger et al., "Ion Channels are Likely to be Involved in the Two Steps of Phage T5 DNA Penetration into <i>Escherichia Coli</i> Cells," <i>J. Biol. Chem.</i> 267:3168-3172 (1992).
	Boyd et al., "Determinants of Membrane Protein Topology," <i>Proc. Natl. Acad. Sci. USA</i> 84:8525-8529 (1987).
	Branton et al., "Biochemical Sensors. Adapting to Nanoscale Events," <i>Nature</i> 398:660-661 (1999).
	Charbit et al., "Permissive Sites and Topology of an Outer Membrane Protein with a Reporter Epitope," <i>J. Bacteriol.</i> 173:262-275 (1991).
	Dargent et al., "Effect of Point Mutations on the <i>In-Vitro</i> Pore Properties of Maltoporin, a Protein of <i>Escherichia Coli</i> Outer Membrane," <i>J. Mol. Biol.</i> 201:497-506 (1988).
	Dargent et al., "Selectivity for Maltose and Maltodextrins of Maltoporin, a Pore-Forming Protein of <i>E. Coli</i> Outer Membrane," <i>FEBS Lett.</i> 220:136-142 (1987).
	Deamer et al., "Characterization of Nucleic Acids by Nanopore Analysis," <i>Acc. Chem. Res.</i> 35:817-825 (2002).
	DeBlois et al., "Electrokinetic Measurements with Submicron Particles and Pores by the Resistive Pulse Technique," <i>J. Colloid Interface Sci.</i> 61:323-335 (1977).
	Ehrmann et al., "Genetic Analysis of Membrane Protein Topology by a Sandwich Gene Fusion Approach," <i>Proc. Natl. Acad. Sci. USA</i> 87:7574-7578 (1990).
	Ferenci et al., "Channel Architecture in Maltoporin: Dominance Studies with LamB Mutations Influencing Maltodextrin Binding Provide Evidence for Independent Selectivity Filters in Each Subunit," <i>J. Bacteriol.</i> 171:855-861 (1989).

EXAMINER	DATE CONSIDERED
EXAMINER: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with the next communication to applicant.	

SUBSTITUTE FORM PTO-1449 (MODIFIED) U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use several sheets if necessary) (37 C.F.R. § 1.98(b))	Attorney Docket No.	50334/019001
	Serial No.	10/668,749
	Applicant	Hui Wang
	Filing Date	September 23, 2003
	Group	1631
	IDS Filed	April 16, 2008

OTHER DOCUMENTS (INCLUDING AUTHOR, TITLE, DATE, PLACE OF PUBLICATION)	
	Ghadiri et al., "Artificial Transmembrane Ion Channels from Self-Assembling Peptide Nanotubes," <i>Nature</i> 369:301-304 (1994).
	Hall et al., "Alamethicin. A Rich Model for Channel Behavior," <i>Biophys. J.</i> 45:233-247 (1984).
	Hamill et al., "Improved Patch-Clamp Techniques for High-Resolution Current Recording from Cells and Cell-Free Membrane Patches," <i>Pflügers Arch.</i> 391:85-100 (1981).
	Harrington et al., "The F Pilus of Escherichia coli Appears to Support Stable DNA Transfer in the Absence of Wall-to-Wall Contact between Cells," <i>J. Bacteriol.</i> 172:7263-7264 (1990).
→	Heinemann et al., "Open Channel Noise: IV. Estimation of Rapid Kinetics of Formamide Block in Gramicidin A Channels," <i>Biophys. J.</i> 54:757-764 (1988).
	Heinemann et al., "Open Channel Noise: V. Fluctuating Barriers to Ion Entry in Gramicidin A Channels," <i>Biophys. J.</i> 57:499-514 (1990).
	Henry et al., "Blockade of a Mitochondrial Cationic Channel by an Addressing Peptide: An Electrophysiological Study," <i>J. Membr. Biol.</i> 112:139-147 (1989).
	Hoshi et al., "Biophysical and Molecular Mechanisms of Shaker Potassium Channel Inactivation," <i>Science</i> 250:533-538 (1990).
	Hoshi et al., "Two Types of Inactivation in Shaker K ⁺ Channels: Effects of Alterations in the Carboxy-Terminal Region," <i>Neuron</i> 7:547-556 (1991).
	Kasianowicz et al., "Characterization of Individual Polynucleotide Molecules Using a Membrane Channel," <i>Proc. Natl. Acad. Sci. USA</i> 93:13770-13773 (1996).
	Kubitschek, "Electronic Counting and Sizing of Bacteria," <i>Nature</i> 182:234-235 (1958).
	Lakey et al., "The Voltage-Dependent Activity of <i>Escherichia Coli</i> Porins in Different Planar Bilayer Reconstitutions," <i>Eur. J. Biochem.</i> 186:303-308 (1989).
	Lopez et al., "Hydrophobic Substitution Mutations in the S4 Sequence Alter Voltage-Dependent Gating in Shaker K ⁺ Channels," <i>Neuron</i> 7:327-336 (1991).
	Li et al., "DNA Molecules and Configurations in a Solid-State Nanopore Microscope," <i>Nat. Mater.</i> 2:611-615 (2003).
	Li et al., "Ion-Beam Sculpting at Nanometre Length Scales," <i>Nature</i> 412:166-169 (2001).
	Meller and Branton, "Single Molecule Measurements of DNA Transport through a Nanopore," <i>Electrophoresis</i> 23:2583-2591 (2002).
	Meller et al., "Voltage-Driven DNA Translocations through a Nanopore," <i>Phys. Rev. Lett.</i> 86:3435-3438 (2001).

EXAMINER	DATE CONSIDERED
EXAMINER: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with the next communication to applicant.	

SUBSTITUTE FORM PTO-1449 (MODIFIED) U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use several sheets if necessary) (37 C.F.R. § 1.98(b))	Attorney Docket No.	50334/019001
	Serial No.	10/668,749
	Applicant	Hui Wang
	Filing Date	September 23, 2003
	Group	1631
	IDS Filed	April 16, 2008

OTHER DOCUMENTS (INCLUDING AUTHOR, TITLE, DATE, PLACE OF PUBLICATION)	
	Moellerfeld et al., "Improved Stability of Black Lipid Membranes by Coating with Polysaccharide Derivatives Bearing Hydrophobic Anchor Groups," <i>Biochem. Biophys. Acta.</i> 857:265-270 (1986).
	Nath et al., "Transcription by T7 RNA Polymerase Using Benzo[a]pyrene-Modified Templates," <i>Carcinogenesis</i> 12:973-976 (1991).
	Neher et al., "Single-Channel Currents Recorded from Membrane of Denervated Frog Muscle Fibers," <i>Nature</i> 260:799-802 (1976).
	Novick et al., "Fluorescence Measurement of the Kinetics of DNA Injection by Bacteriophage λ into Liposomes," <i>Biochemistry</i> 27:7919-7924 (1988).
	Ollis et al., "Domain of <i>E. Coli</i> DNA Polymerase I Showing Sequence Homology to T7 DNA Polymerase," <i>Nature</i> 313:818-819 (1985).
	Ollis et al., "Structure of Large Fragment of <i>Escherichia Coli</i> DNA Polymerase I Complexed with dTMP," <i>Nature</i> 313:762-766 (1985).
	Ovchinnikov et al., "3. The Cyclic Peptides: Structure, Conformation, and Function: P. Gramicidin S. (851) Its Analogs and Tyrocidines A-C (904-906)," <i>The Proteins</i> , Third Edition 5:547-555 (1982).
	Ovchinnikov et al., "3. The Cyclic Peptides: Structure, Conformation, and Function: T. Valinomycin (913)," <i>The Proteins</i> , Third Edition 5:563-573 (1982).
	Patton et al., "Amino Acid Residues Required for Fast Na ⁺ -Channel Inactivation: Charge Neutralizations and Deletions in the III-IV Linker," <i>Proc. Natl. Acad. Sci. USA</i> 89:10905-10909 (1992).
	Sauer-Budge et al., "Unzipping Kinetics of Double-Stranded DNA in a Nanopore," <i>Phys. Rev. Lett.</i> 90:238101 (2003).
	Shiver et al., "On the Explanation of the Acidic pH Requirement for <i>In Vitro</i> Activity of Colicin E1. Site-Directed Mutagenesis at Glu-468," <i>J. Biol. Chem.</i> 262:14273-14281 (1987).
	Sigworth et al., "Open Channel Noise. III. High-Resolution Recordings Show Rapid Current Fluctuations in Gramicidin A and Four Chemical Analogues," <i>Biophys. J.</i> 52:1055-1064 (1987).
	Simon et al., "A Protein-Conducting Channel in the Endoplasmic Reticulum," <i>Cell</i> 65:371-380 (1991).
	Taylor et al., "'Reversed' Alamethicin Conductance in Lipid Bilayers," <i>Biophys. J.</i> 59:873-879 (1991).
	Vercoutere et al., "Rapid Discrimination among Individual DNA Hairpin Molecules at Single-Nucleotide Resolution Using an Ion Channel," <i>Nat. Biotechnol.</i> 19:248-252 (2001).
	Wang et al., "Nanopores with a Spark for Single-Molecule Detection," <i>Nat. Biotechnol.</i> 19:622-623 (2001).

EXAMINER	DATE CONSIDERED
EXAMINER: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with the next communication to applicant.	

<div>SUBSTITUTE FORM PTO-1449 (MODIFIED)</div> <div>U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE</div> <div>INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use several sheets if necessary)</div> <div>(37 C.F.R. § 1.98(b))</div>	Attorney Docket No.	50334/019001
	Serial No.	10/668,749
	Applicant	Hui Wang
	Filing Date	September 23, 2003
	Group	1631
	IDS Filed	April 16, 2008

OTHER DOCUMENTS (INCLUDING AUTHOR, TITLE, DATE, PLACE OF PUBLICATION)	
	Weiss et al., "Molecular Architecture and Electrostatic Properties of a Bacterial Porin," <i>Science</i> 254:1627-1630 (1991).
	West et al., "A Cluster of Hydrophobic Amino Acid Residues Required for Fast Na ⁺ -Channel Inactivation," <i>Proc. Natl. Acad. Sci. USA</i> 89:10910-10914 (1992).
	Wonderlin et al., "Optimizing Planar Lipid Bilayer Single-Channel Recordings for High Resolution with Rapid Voltage Steps," <i>Biophys. J.</i> 58:289-297 (1990).

EXAMINER	DATE CONSIDERED
EXAMINER: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with the next communication to applicant.	